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MEMORANDUM

TO: Thomas H. Mroz, Program Officer, NETL, USDOE
CC: Lisa A. Kuzniar, NETL, USDOE
CC: AAD Document Control, NETL, USDOE

FROM: Timothy S. Collett, Energy Resources Program, Phone 303.236.5731, FAX 303.236.0459, E-Mail tcollett@usgs.gov

SUBJECT: QUARTERLY STATUS REPORT (April-June 2003) for Task No. 6 (Preparation, Drilling, and Testing of a Gas Hydrate Well) under Master Interagency Agreement No. DE-AT26-97FT34342.

PROJECT DURATION: 09/01/1997-09/01/1998
09/01/1997-09/01/1999 – Modification 09/01/98
09/01/1997-12/31/1999 – Modification 07/14/99
09/01/1997-09/30/2000 – Modification 01/05/00
09/01/1997-12/31/2000 – Modification 03/10/00
09/01/1997-09/30/2001 – Modification 12/28/00
09/01/1997-12/30/2002 – Modification 09/24/01
09/01/1997-12/30/2003 – Modification 11/29/02

PROJECT STATUS:

This project had an official start date of September 1, 1997 and it has been modified seven different times. As described in the Fourth Project Modification (dated March 10, 2000), Subtasks 5, 6, and 7 were terminated and reorganized into five new subtasks. For project tracking purposes the five new project subtask are numbered Task 8.1, 8.2, 8.3, 8.4, and 8.5; the status of each of these subtask are discussed below. On November 29, 2002, Task 6 was modified to extend the period of performance by twelve months to December 30, 2003.

Subtask 1. Conduct a four-day gas hydrate production test in the Canadian gas hydrate research well.

Subtask 1 was completed on 9/30/98.

Subtask 2. Assess the production characteristics and resource potential of the gas hydrates tested in the Mallik research well with the collected gas hydrate production test data.

Subtask 2 was completed on 9/30/98.

Subtask 3. Provide preliminary evaluation of collected well test data for development of gas hydrate production simulation models.

Subtask 3 was completed on 9/30/98.

Subtask 4. Continue evaluation of the data from the Mallik core and well logs to determine hydrate potential and reservoir characteristics. Provide support to complete the research and provide for technology transfer of the information.

Subtask 4 was completed on 9/30/99.

Subtask 5. A study of the onshore hydrate occurrences on the North Slope of Alaska will be started by accumulating the necessary well logs, geophysical data and production information in the Prudhoe and Kuparuk Fields. The USGS will work with industry to determine the extent of hydrates in the operating area and utilize the available data to target areas for more intense study.

Subtask 5 was terminated and modified into Tasks 8.1-8.5 in the fourth project modification dated March 10, 2000.

Subtask 6. The characterization of the hydrates may require accessing wells of opportunity, drilling a dedicated research well to determine reservoir characteristics, and providing input to reservoir models. The data is necessary to determine the best method for producing gas from these solid resources.

Subtask 6 was terminated and modified into Tasks 8.1-8.5 in the fourth project modification dated March 10, 2000.

Subtask 7. Available production data will also be analyzed from present wells in the area of known hydrate occurrences. This effort will consist of a production test specifically to identify hydrate reaction to depressurization and injection methods. Perform production modeling utilizing reservoir data as it becomes available.

Subtask 7 was terminated and modified into Tasks 8.1-8.5 in the fourth project modification dated March 10, 2000.

Subtask 8.1. Identify and map the distribution of the Eileen and Tarn gas-hydrate/free-gas accumulations.

Most of the project research activities during this reporting period dealt with project management issues, with the focus on organizing and presenting a series of high level briefings at the National Defense University in Washington, DC and the US Mineral Management Service offices in Herdon, VA. Included within this transmittal is a series of comprehensive reports (and Power Point Presentations) that describe the results of our project management and briefing efforts during the second quarter of FY-2003. See PROJECT DELIVERABLES and OTHER SIGNIFICANT ACTIVITIES sections of this report for detailed information on the accomplishments of this project during this reporting period.

Subtask 8.2. Characterize the reservoir properties of the Eileen and Tarn gas-hydrate/free-gas accumulations.

See PROJECT DELIVERABLES and OTHER SIGNIFICANT ACTIVITIES sections of this report for detailed information on the accomplishments of this project during this reporting period.

Subtask 8.3. Provide reservoir model input from available production data from the Eileen and Tarn gas-hydrate/free-gas accumulations.

See PROJECT DELIVERABLES and OTHER SIGNIFICANT ACTIVITIES sections of this report for detailed information on the accomplishments of this project during this reporting period.

Subtask 8.4. Detailed engineering design of a proposed gas hydrate production test well.

See PROJECT DELIVERABLES and OTHER SIGNIFICANT ACTIVITES sections of this report for detailed information on the accomplishments of this project during this reporting period.

Subtask 8.5. Prepare and initial draft of a full field development plan.

See PROJECT DELIVERABLES and OTHER SIGNIFICANT ACTIVITES sections of this report for detailed information on the accomplishments of this project during this reporting period.

PROJECT DELIVERABLES:

Collett, T.S., 2003, Assessment of gas hydrate concentrations (saturations) with downhole electrical resistivity logs on Hydrate Ridge: Proceedings abstract and poster presentation (hard copy and on CD-ROM), EGS/EGU/AGU Joint Assembly, Nice, France, April 6-11, 2003, 1 page, 1 plate.

Collett, T.S., 2003, The Eileen-Tarn gas hydrate petroleum system, northern Alaska: Proceedings abstract and Power Point Presentation (hard copy and on CD-ROM), American Association of Petroleum Geologists Annual Convention, Salt Lake, Utah, May 10-15, 2003, 1 page, 41 slides.

Collett, T.S., 2003, MEMORANDUM, Proceedings of the May 13, 2003, AAPG-EMD Gas Hydrate Committee Meeting, 10 pages (hard copy and on CD-ROM). (unpublished administrative report, enclosed for informational purposes only)

Collett, T.S., 2003, Methane Hydrates: International Efforts-Current and Future: Proceedings and Power Point Presentation (hard copy and on CD-ROM), National Defense University workshop on "Future Energy Resources", Washington DC, May 7-9, 2003, 6 pages, 57 slides.

Collett, T.S., 2003, Gas hydrate assessments: Proceedings and Power Point Presentation (hard copy and on CD-ROM), US Minerals Management Service workshop on marine gas hydrate assessments, Herdon, Virginia, June 17-18, 2003, 4 pages, 41 slides.

OTHER SIGNIFICANT ACTIVITIES:

Most of the project research activities during this reporting period dealt with project management issues, with the focus on organizing and presenting a series of high level briefings at the National Defense University in Washington, DC and the US Mineral Management Service offices in Herdon, VA. Included within this transmittal is a series of comprehensive reports (and Power Point Presentations) that describe the results of our project management and briefing efforts during the second quarter of FY-2003.

4/6-4/11: Prepared and gave a poster presentation at the EGS/EGU/AGU Joint Assembly (Titled: *Assessment of gas hydrate concentrations with downhole electrical resistivity logs on Hydrate Ridge*) in Nice France (included for informational purposes, no USDOE funds were used to support this effort).

4/30: Participated in project review meeting with representatives from the US Minerals Management Service (in Denver, Colorado) to discuss potential cooperative marine gas hydrate research opportunities.

5/6: During this reporting period we participated in project planning meetings (in Houston, Texas) with representatives the DOE sponsored, Chevron-Texaco lead, JIP gas hydrate research project in the Gulf of Mexico. Tim Collett has been requested by the JIP to consult on the proposed downhole-logging program associated with the 2004 JIP gas hydrate research-coring project in the Gulf of Mexico. Throughout this reporting period, Collett has contributed expert consultation to the JIP on the outstanding logging bid contract effort.

5/8: Prepared and gave an oral presentation at the National Defense University workshop on "Future Energy Resources" (Titled: *Methane Hydrates: International Efforts-Current and Future*) in Washington DC.

5/13: Convened (as Committee Chair) the AAPG-EMD Gas Hydrate Committee Meeting at the 2003 American Association of Petroleum Geologists Annual Convention, Salt Lake City, Utah. The AAPG-EMD Gas Hydrate Committee at present has more than 60 industry/government representatives (for more information on the purpose and goals of this Committee see the copy of the attached memorandum that reviews the results of the May 13, 2003 meeting).

5/14: Prepared and gave an oral presentation at the 2003 American Association of Petroleum Geologists Annual Convention (Titled: *The Eileen-Tarn gas hydrate petroleum system, northern Alaska*) in Salt Lake City, Utah. Also acted as co-chair of both the oral and poster gas hydrate sessions at the 2003 AAPG Convention.

6/9-6/11: During this reporting period we participated in project planning meetings with representatives from British Petroleum (Alaska) and the Japan National Oil Corporation (in Anchorage, Alaska) to discuss potential cooperative research opportunities within the BPXA-USDOE funded Alaska gas hydrate research project.

6/12-6/13: Convened (as Committee leader) working meeting of the Mallik-2002 gas production modeling and testing team in Calgary, Alberta, Canada (included for informational purposes, no USDOE funds were used to support this effort).

6/16-6/18: Participated in US Minerals Management Service sponsored workshop (in Herdon, Virginia) on marine gas hydrate assessments. Prepared and gave an oral presentation overview of historical gas hydrate assessments.